Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	ET Docket 01-278
Review of Part 15 and Other Parts	)	RM-9375
of the Commission's Rules	)	RM-10051

COMMENTS OF SAFETY WARNING SYSTEM, L.C.

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Safety Warning System, L.C.

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Pursuant to Section 1.415 of the Commission's Rules, Safety Warning System, L.C. (SWS) submits these Comments in the above-captioned rulemaking.[1]

The Safety Warning System employs microwave transmitters at 24.1 GHz to generate messages in receivers that alert drivers to the presence of specific hazards and special traffic conditions -- school buses unloading students, road work zones, ice-covered bridges, hidden intersections, active rail crossings, police vehicles responding to emergencies, utility crews at work, and more. Safety Warning System, L.C. was formed to help promote the Safety Warning System and to assist in placing Safety Warning System transmitters across the United States.

THE COMMISSION SHOULD LIMIT RESTRICTED-BAND STATUS ABOVE 38.6 GHZ TO THOSE BANDS ACTUALLY NEEDING SUCH PROTECTION.

A. SWS's experience demonstrates the need to review the restricted bands.

Safety Warning System transmitters at 24.1 GHz are currently licensed under Part 90, but only to public safety and railroad eligibles.[2] Others who need these transmitters, such as highway construction crews, are ineligible for these Part 90 licenses. Moreover, there is a demand for low cost, low-power versions in the 10-20 milliwatt range. In principle, Part 15 certification under

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[1] *Review of Part 15 and other Part of the Commission's Rules*, ET Docket 01-278, Notice of Proposed Rulemaking and Order, FCC 01-290 (released Oct. 15, 2001) (Notice).

[2] 47 C.F.R. Secs. 90.20(f)(4), 90.35(d)(7).

Section 15.249 should be able to accommodate all of these needs. Section 15.249 authorizes unlicensed 24 GHz transmitters at appropriate power levels, and allows harmonics at 2500 microvolts/meter, which is attainable.

But a manufacturer seeking certification of such a device, although complying with these rules, ran into an unexpected problem. The Commission has designated all frequencies above 38.6 GHz as a restricted band.[3] All harmonics of a 24.1 GHz device necessarily fall in this restricted band. And the harmonics in a restricted band are limited to 500 microvolts/meter.[4] This is *not* attainable at a price low enough to reach the market that needs the technology.[5] Yet the second and third harmonics at 48.2 and 72.3 GHz, respectively, fall in allocations that *do not qualify for restricted status*: fixed, mobile, and satellite uplink. (The fourth harmonic of this manufacturer's product complies with the 500 uV/m requirement.) There is simply no technical (or other) basis for limiting the second and third harmonics to restricted-band levels.

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[3] 47 C.F.R. Sec. 15.205.

[4] *Id*., *referring to* 47 C.F.R. Sec. 15.209.

[5] If Section 15.249 governed, the manufacturer could use a microwave source that costs $35 in production quantities. Taking into account other components, labor costs, etc., the final product would sell in the $175-200 range -- the approximate market ceiling for this type of product. But the manufacturer estimates the per-unit cost of a microwave source that meets the restricted-band limit on harmonics (if one were available) at about $125, plus the amortization of an estimated $30,000 in development costs. That would raise end price of the product by at least 50%, which puts it outside the marketable range. Developing the new source would also delay shipment by at least 8-12 months, which would significantly reduce the sales potential of a product with an estimated 5 year lifetime.

B. A re-examination of the restricted bands above 40 GHz is in the public interest.

The application of the restricted-band rule to 24.1 GHz harmonics results from an historical accident, and serves no regulatory purpose. The present listing of restricted bands arose in the 1989 overhaul of Part 15.[6] The over-38.6 band specified in Sec. 15.205(a) is actually two distinct bands. First, the Commission listed 38.6-40 GHz to protect an allocation for satellite downlinks. Second, the Commission separately established a blanket restricted band for all frequencies above 40 GHz. But the Commission did not take this step because all frequencies above 40 GHz need protection. Instead, the blanket listing above 40 GHz was simply a matter of administrative convenience, to avoid the need for individual decisions on dozens of different allocations. At the time the rule was promulgated, no Part 15 device required measurements above 40 GHz, so the blanket listing did not disadvantage anyone.[7]

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[6] *Revision of Part 15 of the Rules*, 4 FCC Rcd 3493, paras 61-74 & pages 3550-3553 (Appendix C) (1989). A few more restricted bands have been added since.

[7] The Commission explained the restricted band above 40 GHz in these terms:

> Numerous bands above 40 GHz would be restricted because of their allocation for radio astronomy, satellite down links, etc. *In addition, the rules limit the range of measurements to 40 GHz. Because measurements are not required above 40 GHz, standards have not been established at higher frequencies.* Further, there appears to be no current demand for non-licensed operation above 40 GHz. Thus, operation of a Part 15 device above 40 GHz is not being permitted at this time. Specific restricted frequency bands and standards for Part 15 devices operating above 40 GHz will be addressed in a future rule making proceeding, if needed.

Revision of Part 15 of the Rules, 4 FCC Rcd at 3553 (emphasis added).

That changed in 1995, with a rulemaking that required intentional radiators using fundamental frequencies at or above 10 GHz to be measured above 40 GHz.[8] A 24 GHz transmitter must now be studied to 100 GHz. Thus, the 1989 assumption that "measurements are not required above 40 GHz"[9] has ceased to be true, eliminating the primary rationale for the blanket restricted band. Although the 1989 order promised a rulemaking to reexamine the restricted bands above 40 GHz "if needed,"[10] that rulemaking has not occurred, until now.

The Part 15 Safety Warning System transmitter described above provides dramatic evidence as to why the over-40 restricted bands are overdue for reevaluation. A socially valuable product at an affordable cost is effectively barred from the market because the Commission took the regulatory shortcut in 1989 of establishing the blanket restricted band over 40 GHz, and then failed to update the rule when its rationale expired. The Commission should use this opportunity to update the table of restricted bands to reflect only those actually needing protection.

Respectfully submitted,

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[8] *Use of Radio Frequencies Above 40 GHz for New Radio Applications*, 11 FCC Rcd 4481 (1995), *codified at* 47 C.F.R. Sec. 15.33(a).

[9] *Revision of Part 15 of the Rules*, 4 FCC Rcd at 3553.

[10] *Id*.

SERVICE LIST

I certify that I have caused copies of the foregoing "Comments of Safety Warning System, L.C." to be transmitted by email and by hand delivery to the following persons:

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